

REMARKS

Claims 1-5 are now pending in this application for which applicant seeks reconsideration.

Amendment & Interview

Claims 1-3 have been extensively amended to improve their clarity in light of the telephonic interview held on 22 October 2008. During the interview, the examiner pointed out that the language "reduced differences" in claims 1 and 3 could read on a zero difference, which means that there is no differences in weights imparted between the high and low frequency components. The examiner, however, tentatively agreed that if the claims are revised to more clearly set forth the "reduced difference," so that they do not read on a zero difference, the claims would overcome the art rejections.

In this respect, claims 1-3 have been amended in terms of first, second, third, fourth weights to more clearly recite that the center speaker unit and the peripheral speaker units are driven at different weights depending on the frequency components. Applicant submits that the scope of amended claims is substantially similar to the intended scope of the previously presented claims, but worded differently. New claims 4 and 5 have been added to further define claims 1 and 3. No new matter has been introduced.

During the interview, the examiner wished to know the rationale behind imparting different weights to the speakers. Page 3, the third paragraph, of the present specification discloses the problem associated with an array speaker. That is, sound directivity control increases sound pressure energy at the focal point but decreases sound pressure energy at the other positions. Page 6, the third paragraph of the present specification discloses that contours of sound pressure energy can ripple in a comb-like manner at certain positions not lying at a position of primary direction. The present weight distribution configurations as set forth in the claims are to improve the sound directivity distribution and broaden the sweet spot at the listening position. See pages 6-9 of the present specification.

Art Rejection

Claim 1 was rejected under 35 U.S.C. § 103(a) as unpatentable over Tanaka (JP 5-103391) in view of Sasaki (JP 9-233591) and Oinoue (USP 7,113,602). Claim 2 was rejected under § 103(a) as unpatentable over Tanaka in view of Sasaki and Satoh (USP 5,146,507). Claim 3 was rejected under § 103(a) as unpatentable over Tanaka in view of Sasaki, Doidic (USP 5,789,689), and Oinoue.

Applicant submits that the present amendment obviates the above art rejections because “reduced difference” cannot be zero as presently claimed. Indeed, as expressed by the examiner during the interview, as claims 1-3 have been revised to clearly define the meaning of “reduced difference,” applicant submit that the pending claims define over the applied references.

Specifically, in the previous reply, applicant explained that the previously applied references would not have disclosed or taught driving the center speaker unit and the peripheral speaker units at different weights depending on the frequency components.

Realizing Tanaka and Sasaki’s shortcomings, as to claim 1, the examiner relied upon Oinoue for the proposition that imparting a greater weight to the high frequency components than the low frequency components would have been obvious. Even if Oinoue were to disclose as urged by the examiner for argument’s sake, there still is no teaching anywhere for imparting at “reduced differences” (as presently defined) between the weight imparted to the center speaker unit and the weight imparted to the peripheral speaker units in the array speaker for the low-frequency components.

For example, if 1 represents the highest weight and 0 represents the lowest weight, if the first weight of the center speaker is 1 and the second weight of the peripheral speaker units is 0.60 for the high-frequency components (see pages 10-12 of the present specification), according to claim 1, the third weight applied to the center speaker and the fourth weights applied to the peripheral speakers for the low-frequency components can be 0.9 and 0.75, respectively (or both can be the same as set forth in claim 4, such as 0.9). That is, the difference between the third weight imparted to the center speaker and the fourth weights imparted to the peripheral speaker units for the low-frequency components is .15 (or zero if both are the same as set forth in claim 4) in the above example. The difference between the first and second weights for the high-frequency components is .40 in the above example, and cannot be zero since the first weight imparted to the center speaker is always greater than the second weights imparted to the peripheral speakers for the high-frequency components. The weight difference (.15) for the low-frequency components is always smaller than the weight difference (0.4) for the high-frequency components.

During the interview, the examiner indicated that “reduced difference” can be zero. According to claim 1, the weight difference between third and fourth weights for low-frequency components can be zero (if the third and fourth weights for the low-frequency components are equal, as set forth in claim 4). But, the weight difference between the third and fourth weights

for the low-frequency components (0.15 or 0 in the above example) has to be smaller than the weight difference between the first and second weights for the high-frequency components (0.4 in the above example). The weight differences between the center speaker unit and the peripheral speaker units for the low-frequency components is always smaller than the weight differences for their high-frequency components, namely (third-fourth) < (first-second).

Applicant submits that none of the applied references would have disclosed or taught the above aspects set forth in claim 1. Indeed, Oinoue's teachings in conjunction with Tanaka at best merely would have taught imparting a greater weight to the high-frequency components across all the speakers. But Tanaka would have taught driving the low-frequency and middle-frequency components at a higher weight for the center speakers than the peripheral speakers.

Applicant submits that claim 3 also patentably distinguishes over the applied references for the similar reasons with respect to imparting weights for the intermediate-frequency components in comparison with the weights for the high-frequency components. Moreover, applicant submits that none of the applied references would have taught imparting the same weight for the low-frequency components without applying the time differences to the speaker units as set forth in claim 3.

As to the examiner's argument that Doidic does not apply time difference as it processes the signals in real time, the examiner fails to take into consideration Sasaki. In essence, the examiner is suggesting somehow that Sasaki's teachings do not apply to the low-frequency components, but applies only to the other frequency components. The examiner's argument is simply untenable since the examiner has not provided any reference that teaches applying time difference to only specific frequency components and not to others. Accordingly, the combination urged by the examiner simply fails to disclose or teach applying time differences to the speaker units for only the intermediate and high frequency components and not to the low-frequency components, as set forth in claim 3.

Claim 2 calls for applying first and second weights for the high-frequency components, similarly to claims 1 and 3. Claim 2, however, calls for applying equal weights to all the speaker units for the low-frequency components, similarly as set forth in claim 4. Because Satoh processes the signals in all frequency range at the same gain, as admitted by the examiner, Satoh would not have taught driving different frequency components at different levels, let alone depending on the position of the speakers. Note that claim 2 calls for imparting relatively larger weights at the center speaker units than the peripheral speaker units for the high-frequency components, while imparting the same weight for all the speaker units for the low-frequency

components. Since Tanaka calls for driving the center speaker at a higher gain, and Satoh calls for processing the signals for all channels with the same weight, the combination would not have taught driving different frequency components at different level differences depending on the position of the speakers.

Conclusion

Applicant submits that claims 1-5 clearly distinguish over the applied references and are in condition for allowance. Should the examiner have any issues concerning this reply or any other outstanding issues remaining in this application, applicant urges the examiner to contact the undersigned to expedite prosecution.

Respectfully submitted,

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DATE

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